

Notice of Allowability	Application No.	Applicant(s)	
	10/526,557	WAKASUGI ET AL.	
	Examiner	Art Unit	
	Jafar Parsa	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment filed on 12/28/2006.
2. ☐ The allowed claim(s) is/are 1.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

The following is an examiner's statement of reasons for allowance:

Applicants' claimed invention is directed a process for preparing p-dichlorobenzene by nuclear chlorination of benzene and/or chlorobenzene as the starting material with chlorine molecules, chlorination is carried out using aluminum chloride in an amount of 0.1-3 millimols per mol of the starting material and phenothiazines represented by formula (I) in an amount of 0.1-0.9 mols per mol of aluminum chloride so as to be a chlorination degree in a range of 1.2-2.5, by which p-dichlorobenzene can be obtained in a high para-selectivity and a short reaction time.

The prior art Mais et al discloses that 1 mole of the co-catalyst is used with respect to 1 mole of FeCl_3 . No example in Mais et al describes the use of 0.1 mole of N-[(perfluoroalkyl)-carbonyl] phenothiazines with respect to 1 mole of Friedel-Crafts catalyst as required by claim 1. The yield of p-dichlorobenzene in Example 1 of Mais et al is 33.36% (46.98% 1.4 [degree of chlorination]) but is 36.41% in Example 1 of the present invention (58.98% 1.62 [degree of chlorination]), 8.5% increase in yield.

Mizusawa et al reference also does not teach 0.1 to 0.9 mole of phenothiazine represented by formula (I) is used with respect to 1 mole of AlCl_3 . The use of AlCl_3 is not specifically disclosed or used in the production examples of Mizusawa et al. Furthermore, the reference does not disclose or suggest that AlCl_3 provides unexpected higher yields of p-dichlorobenzene. For example, the yield of p-dichlorobenzene in Example 1 of Mizusawa et al. is 32.20% (47.66% 1.48 [degree of chlorination]), whereas Example 1 of the present invention has a yield of 36.41% (58.98% 1.62 [degree of chlorination]), a 13.1% increase in yield.

Thus, neither Mais et al nor Mizusawa et al discloses nor suggests that AlCl_3 is better than FeCl_3 as a Lewis acid. Further, it cannot be predicted from the teaching of Mais et al and Mizusawa et al that "the use of 0.1 to 0.9 mole of phenothiazine represented by formula (I) with respect to 1 mole of AlCl_3 " provide the advantage of shortening the reaction time as compared with Mais et al and Mizusawa et al as well as providing a higher yield and a higher para-selectivity.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
January 21, 2007

Jafar Parsa
Primary Examiner
Art Unit 1621



J. PARSA
PRIMARY EXAMINER